

Sauna - a hobby or for health?

Sauna bathing has recently spread from Scandinavia to England and the rest of Europe. Among the various forms, the Finnish sauna is the most popular. It consists of a small, wood-panelled room with benches to sit or lie on, usually at three different heights. The air temperature is 80-90°C; heating, nowadays, is provided electrically. The humidity can be adjusted by pouring water over the sauna oven; normally the relative humidity is around 10%. After showering and drying one enters the sauna room (naked) and puts oneself comfortably on one of the benches (the top being the hottest). After 8-15 min one leaves the hot room, showers and enters a tub with cold (~8-12°C) water. A rest of 10-20 min is advisable following the cold plunge. This is repeated two or three times, thus the whole procedure lasts at least one hour. Most sauna lovers experience a sense of intense well-being after a bath which is often (mis)taken for a true health promoting effect. Yet the scientific data are far from being straightforward.

The acute reactions to sauna bathing are the expression of active thermoregulation and bear similarities with those of acute physical exercise¹: hormonal changes², sweating with loss of body water and electrolytes, skin vasodilatation with an increase in heart rate and cardiac output resulting in a slight drop of blood pressure, hyperventilation³ as well as deterioration of blood fluidity⁴. The core temperature may rise by some 2°C⁵. In contrast the 'cold plunge' causes skin vasoconstriction and a (sometimes sharp) rise in blood pressure⁶. All these changes are short-lived and normalize within a few hours¹.

Regardless of these well established acute responses, the long term sequelae of regular sauna visits are predominantly speculative³. The literature repeatedly postulates a 'training-effect' on the cardiovascular system⁷, a claim which was never substantiated.

A number of studies (mostly retrospective and poorly controlled) suggest that regular sauna visits reduce the incidence of common colds in children and adults^{5,8}. A controlled prospective trial shows, that this is in fact true. During the first three months of this experiment both the sauna (two visits per week) and the non-sauna groups reported similar common cold frequencies. After that point there was a striking and significant reduction of colds in the sauna group. In the second three months the incidence of colds in the sauna group was only half of the controls⁹. Recently it has been shown that breathing humid, hot air (a sauna for the upper respiratory tract, so to speak) is effective in treating common colds¹⁰.

Nevertheless it seems unwise to advocate sauna indiscriminately. It is not a tool for reducing body weight, even though 0.5-1 kg can be lost through sweating⁴, the reduction is only short lasting. Sauna bathing has its risks: sudden deaths, arrhythmias, heart attacks and ST segment depression have been reported^{3,5}. Individuals taking insulin, suffering from infections or anhidrosis, or having consumed alcohol should not participate^{3,5,11}. Pregnant women are also well advised to abstain¹². Thus, whenever in doubt, a medical check up is mandatory. Once this is done, sauna can be fun and relaxing - whether this is caused by endorphins¹³ or by other mechanisms makes little difference to the enthusiast.

E Ernst

*Department of Physical Medicine & Rehabilitation
Medical School, Hanover, FRG*

References

- 1 Kukkonen-Harjula K, Oja P, Laustiola K, *et al*. Haemodynamic and hormonal responses to heat exposure in a Finnish sauna bath. *Eur J Appl Physiol* 1989; **58**:543-50
- 2 Kukkonen-Harjula K, Kauppinen K: How the sauna effects the endocrine system. *Ann Clin Res* 1988; **20**:262-6
- 3 Ernst E. Kardiovaskuläre Effekte des Saunabadens. 1988;**8**:668-72
- 4 Ernst E, Strziga P, Schmidlechner Ch, Magyarosy J. Sauna effects on hemorheology and other variables. *Arch Phys Med* 1986;**67**:526-9
- 5 Kauppinen K, Vuori J. Man in the sauna. *Ann Clin Res* 1986;**18**:173-85
- 6 Davies H. Cardiovascular effects of the sauna. *Ann J Phys Med* 1975;**54**:178-86
- 7 Hollmann W. Training und Sauna. *Z Allg Med* 1983;**1**:55-8
- 8 Einenkel D. Verbesserung des Gesundheitszustandes von Kindergartenkindern im Kreis Annaberg durch den regelmäßigen Besuch einer Betriebssauna. *Z Arztl Fortbild* 1977;**71**:1069-71
- 9 Ernst E, Pecho E, Wirz P. Regular sauna bathing reduces the incidence of common colds. *Ann Med* (submitted)
- 10 Tyrell D, Barrow I, Arthur J. Local hyperthermia benefits natural and experimental common colds. *Br Med J* 1989;**298**:1280-3
- 11 Hawkins C. The sauna: killer or healer? *Br Med J* 1987;**295**:1015-16
- 12 Miller P, Smith DW, Shepaard TH. Maternal hyperthermia as a possible cause of anencephaly. *Lancet* 1978;**i**:519-20
- 13 Jezova D, Vigas M, Tatar P, Jurcovicova J, Palat M. Rise in plasma β -endorphin and ACTH in response to hyperthermia in sauna. *Horm Metab Res* 1985;**17**:693-4

0141-0768/89/
110639-01/\$02.00/0
© 1989
The Royal
Society of
Medicine